

Table 2. Color-code for increasing levels of volcanic unrest in Long Valley Caldera and the Mono-Inyo Craters region and the attendant U.S. Geological Survey (USGS) response. See figure 5 for calldown structure. LP, long period; VLP very long period; RSAM real-time seismic amplitude measurement; M, magnitude; LVO, Long Valley Observatory.

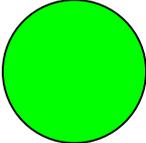
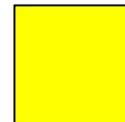
<p>CONDITION GREEN – No Immediate Risk</p> 		
ACTIVITY LEVEL	GEOLOGIC BEHAVIOR	USGS RESPONSE
Background or Quiescence	Background typically includes several M~2 earthquakes/day with 10-20 smaller events and CO ₂ emissions at Mammoth Mtn < 500 t/day	Normal operations
Weak Unrest	Any of the following with strain rates < 0.1 ppm/day or displacements < 1 mm/week and CO ₂ emissions < 500 t/day <ul style="list-style-type: none"> • At least 1 M≥3 event/day (may be locally felt), 5 M≥ 2 events/day, or 30 M≥1 events/day. • A swarm with > 20 M≥1 events/hr • Sudden onset of seismicity in a new area 	Discretionary information calls to project scientists and or local authorities as appropriate
Minor Unrest	Any of the following with strain rates < 0.1 ppm/day or displacements < 1 mm/week and CO ₂ emissions < 500 tons/day <ul style="list-style-type: none"> • A swarm and at least 1 M≥3.5/day, 5 M≥2.5/day, or 30 M≥1.5 events/day • More than 20 M≥1 events/hr for > 3 hrs • More than 100 M≥1 events/day 	Information calls to project scientists and discretionary information calls to local authorities as appropriate.
Moderate-to-Strong Unrest	Any combination of the following: <ul style="list-style-type: none"> • A swarm and at least 1 M≥4 earthquake/day, 5 M≥3 events/day, or 30 M≥2 earthquakes/day • 500 M≥1 earthquakes /day (avg. > 20 M≥1 earthquakes /hr for 24 hrs) • 5 shallow (<5 km) LP earthquakes /day • 5 shallow (<5 km) VLP earthquakes /day • 5 minutes of shallow (<5 km) harmonic tremor with RSAM amplitudes > 50 on > 2 stations • Strains > 0.1 ppm/day or displacements > 5 mm/week • CO₂ emissions > 500 tons/day 	Information calls to project scientists, California Office of Emergency Services (OES) and local authorities. A “heads up” call-down if increasing activity rates approach the criteria for condition YELLOW (see below).

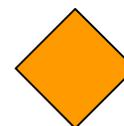
Table 2.–Continued.

CONDITION YELLOW (WATCH)



ACTIVITY LEVEL	GEOLOGIC BEHAVIOR	USGS RESPONSE
Intense Unrest	<p>A swarm and $\geq 1 M \geq 5$, $> 5 M \geq 4$, or $> 30 M \geq 3$ events/day OR Average strain rates of > 1 ppm/day or displacements of > 5 mm/day on 3 or more instruments sustained for > 48 hrs AND any of the following:</p> <ul style="list-style-type: none"> • A swarm with $> 60 M \geq 1$ events/hr for > 8 hrs or > 500 events/8 hrs • A swarm with $> 1000 M \geq 1$ events/day (avg > 40 events/hr for 24 hrs) • Shallow (< 5 km) harmonic tremor with duration > 10 minutes and RSAM amplitudes > 50 on > 2 stations • > 5 shallow (< 5 km) $M \geq 1$ LP earthquakes/hr for > 4 hrs. • > 5-10 shallow (< 5 km) VLP events/day • Sustained CO₂ emission rates $> 1,000$ t/day AND/OR SO₂ emission rates > 100 t/day 	<p>Call-down notification of change to condition YELLOW</p> <p>EVENT RESPONSE</p> <ul style="list-style-type: none"> • Implement LVO EVENT RESPONSE structure (Figure 10) • Establish LVO field office in Mammoth Lakes • Establish LVO backup field office in Bridgeport <p>A “heads-up” call-down if activity looks as though it is rapidly evolving toward a condition ORANGE</p>

CONDITION ORANGE (WARNING)



ACTIVITY LEVEL	GEOLOGIC BEHAVIOR	USGS RESPONSE
Accelerating Intense Unrest: ERUPTION LIKELY within hours to days	<p>Average strain rates of > 10 ppm/day or displacements of > 50 mm/day on 3 or more sustained for 24 hours AND any of the following:</p> <ul style="list-style-type: none"> • > 10 shallow (< 5 km) LP earthquakes/hr for > 3 hrs. • Tens of shallow (< 5 km) VLP events per day • Shallow (< 5 km) harmonic tremor with duration > 1 hr and RSAM amplitudes > 100 on > 2 stations • A swarm with $> 15 M > 2.5$ earthquakes/hr sustained for > 6 hrs (locally felt earthquakes every 4 to 5 minutes) • Sustained CO₂ emission rates $> 10,000$ t/day AND/OR SO₂ emission rates $> 1,000$ t/day 	<p>Call-down notification of change to condition ORANGE.</p> <p>EVENT RESPONSE (If not already in effect under condition YELLOW)</p> <ul style="list-style-type: none"> • Implement LVO EVENT RESPONSE structure (Figure 10) • Establish LVO field office in Mammoth Lakes • Establish LVO backup field office in Bridgeport

Table 2.–Continued.

CONDITION RED (ERUPTION IN PROGRESS)



ACTIVITY LEVEL	GEOLOGIC BEHAVIOR	USGS RESPONSE
<p>LEVEL 1: Minor eruption underway</p>	<p>Eruptive activity characterized by any of the following:</p> <ul style="list-style-type: none"> • Small explosive blasts (either phreatic or magmatic) • Effusive lava fountains feeding fluid lava flows • Dome growth • Eruption column, if present, may reach 1 km above vent elevation • Hazardous zone subject to ballistic ejecta or small pyroclastic flows generally limited to 1 to 2 km from eruption vent(s). Minor down-wind ash fall possible 	<p>Call-down notification of change to condition RED</p> <p>EVENT RESPONSE (if not already in effect under conditions YELLOW or ORANGE).</p> <ul style="list-style-type: none"> • Implement LVO EVENT RESPONSE structure (Figure 10) • Establish LVO field office in Mammoth Lakes • Establish LVO backup field office in Bridgeport
<p>LEVEL 2: Moderate eruption underway</p>	<p>Explosive eruptive activity characterized by</p> <ul style="list-style-type: none"> • Eruption column 2 to 5 km above vent(s) • Hazardous zone subject to pyroclastic flows or surges as far as 5 km from eruption vent(s). • Light to moderate down-wind ash fall 	<p>Communicate changes in eruption levels and associated hazard zone to civil authorities through daily to hourly updates.</p>
<p>LEVEL 3: Strong eruption underway</p>	<p>Explosive eruption characterized by</p> <ul style="list-style-type: none"> • Eruption column 5 to 15 km above vent(s) • Hazardous zone subject to pyroclastic flows or surges as far as 10 km from eruption vent(s). • Ash cloud may intersect some commercial aircraft flight paths over region • Moderate to heavy down-wind ash fall 	
<p>LEVEL 4: Massive eruption underway</p>	<p>Explosive eruption characterized by</p> <ul style="list-style-type: none"> • Eruption column reaching or exceeding 25 km above eruption vent(s) • Hazardous zone subject to pyroclastic flows or surges may extend 20 km or more from eruption vent(s). • Ash cloud pervades most aircraft flight paths over the region • Heavy down-wind ash fall. 	